

WHAT IS CLAIMED IS:

1. An apparatus for drying under reduced pressure that dries a solvent in a coating liquid by placing a substrate having the coating liquid applied in a pressure-reduced atmosphere, comprising:
 - an airtight container in which a substrate mount portion for
5 mounting the substrate is provided to place the substrate in the pressure-reduced atmosphere;
 - a straightening vane provided so as to face a surface of the substrate mounted on said substrate mount portion with a gap interposed, and having a size the same as or larger than an effective area of the substrate;
 - 10 means for evacuating and reducing pressure in said airtight container;
 - an exhaust flow rate regulating portion for regulating a flow rate of an exhaust for pressure reduction; and
 - a control portion outputting a flow rate set value for said exhaust
15 flow rate regulating portion, and varying the flow rate set value at least in two steps while the solvent is actively evaporating from said coating liquid.
2. The apparatus for drying under reduced pressure according to claim 1, wherein
 - said control portion varies the flow rate set value from one to
another among a first flow rate set value and a second flow rate set value
5 larger than the first flow rate set value, while the solvent is actively evaporating from said coating liquid.
3. The apparatus for drying under reduced pressure according to claim 2, wherein
 - a timing for switching between the first flow rate set value and the
second flow rate set value is a timing attaining evenness in a peripheral
5 portion of the coating film better than in a case where evacuation has been continued based on the first flow rate set value or in a case where evacuation has been continued based on the second flow rate set value while the solvent

is actively evaporating from said coating liquid.

4. The apparatus for drying under reduced pressure according to claim 2, wherein

said control portion includes a timer forming a timing of switching between the first flow rate set value and the second flow rate set value.

5. The apparatus for drying under reduced pressure according to claim 2, further comprising a pressure detecting portion for detecting a pressure in the airtight container, wherein

5 said control portion switches the flow rate set value between the first flow rate set value and the second flow rate set value based on a pressure value detected by the pressure detecting portion.

6. The apparatus for drying under reduced pressure according to claim 1, wherein

5 said control portion stores data corresponding to a pattern of the flow rate set value while the solvent is actively evaporating from said coating liquid, for each type of the coating liquid.

7. The apparatus for drying under reduced pressure according to claim 1, wherein

5 said control portion stores data corresponding to a pattern of the flow rate set value while the solvent is actively evaporating from said coating liquid, for each film thickness of the coating liquid.

8. The apparatus for drying under reduced pressure according to claim 1, wherein

5 said control portion stores data corresponding to a pattern of the flow rate set value while the solvent is actively evaporating from said coating liquid, for each combination of the type and the film thickness of the coating liquid.

9. A coating film forming apparatus, comprising:
a cassette mount portion in which a cassette storing a plurality of substrates is loaded;
a coating unit applying a coating liquid to the substrate;
5 the apparatus for drying under reduced pressure according to claim 1, into which the substrate having the coating liquid applied in the coating unit is loaded; and
means for taking out the substrate from the cassette mounted on said cassette mount portion, carrying the substrate into said coating unit,
10 and carrying the substrate having the coating liquid applied to the apparatus for drying under reduced pressure.
10. The apparatus for drying under reduced pressure according to claim 1, wherein
while the solvent is actively evaporating from said coating liquid, the pressure in said airtight container is set so as to be slightly higher than a
5 pressure at which the solvent at room temperature attains to a boiling point in said airtight container in which pressure has been reduced.
11. A method for drying under reduced pressure with which a solvent in a coating liquid is dried by placing a substrate having the coating liquid applied in a pressure-reduced atmosphere, comprising the steps of:
mounting the substrate on a substrate mount portion provided in an
5 airtight container;
positioning a straightening vane so as to face a surface of the substrate mounted on the substrate mount portion with a gap interposed;
evacuating and reducing pressure in the airtight container down to a pressure at which a solvent component actively evaporates from said coating
10 liquid; and
varying a flow rate set value at least in two steps while the solvent component is actively evaporating from said coating liquid.
12. The method for drying under reduced pressure according to

claim 11, wherein

5 the step of varying a flow rate set value at least in two steps while the solvent component is actively evaporating from said coating liquid is the step of varying the flow rate set value from one to another among a first flow rate set value and a second flow rate set value larger than the first flow rate set value.

13. The method for drying under reduced pressure according to claim 12, wherein

5 a timing for switching between the first flow rate set value and the second flow rate set value is a timing attaining evenness in a peripheral portion of the coating film better than in a case where evacuation has been continued based on the first flow rate set value or in a case where evacuation has been continued based on the second flow rate set value while the solvent is actively evaporating from said coating liquid.

14. The method for drying under reduced pressure according to claim 11, wherein

5 said step of reducing pressure down to a pressure at which the solvent component actively evaporates from said coating liquid includes the step of reducing pressure until the pressure in said airtight container is set so as to be slightly higher than a pressure at which the solvent at room temperature attains to a boiling point in said airtight container in which pressure has been reduced.